

OCEAN ICE.

On chart i are shown the positions of the icebergs that have been observed in the north Atlantic during October, 1885, as obtained from reports sent to this office by shipmasters, and from other data published in the "New York Maritime Register."

No icebergs were observed south of the forty-eighth parallel, nor east of the forty-seventh meridian, during October, 1885. A few bergs were reported near the Strait of Belle Isle.

In the preceding month (September) icebergs, though few in number, were encountered as far south as the forty-fifth parallel, and eastward to about W. 46° ; thus, a comparison between the two months shows that the bergs are rapidly disappearing from the route of trans-Atlantic steamers.

The following is a comparison between October, 1885, and the same month in the three preceding years:

Southern limit.			Eastern limit.		
Date.	Lat. N.	Lon. W.	Date.	Lat. N.	Lon. W.
October, 1882*	o /	o /	October, 1882 *	o /	o /
October, 1883.....	46 56	46 22	October, 1883	46 56	46 22
October, 1884.....	near Cape Race		October, 1884	46 56	50 55
October, 1885.....	48 21	47 12	October, 1885.....	48 21	47 12

* No icebergs were reported in October, 1882.

Icebergs were reported as follows:

3d.—S. S. "Saint Laurent," in N. $48^{\circ} 32'$, W. $50^{\circ} 32'$, passed seven miles south of a small iceberg.

14th.—S. S. "Boston City," in N. $48^{\circ} 21'$, W. $47^{\circ} 12'$, passed a small iceberg; s. s. "Foscolia," in N. $51^{\circ} 55'$, W. $54^{\circ} 06'$, passed a large iceberg, also two large bergs to the north-eastward of Belle Isle.

21st.—S. S. "Caspian," in N. $52^{\circ} 16'$, W. $53^{\circ} 19'$, passed several icebergs; s. s. "Lake Champlain" passed several icebergs when within about fifty miles of Belle Isle.

26th.—S. S. "Ontario," in N. $52^{\circ} 06'$, W. $53^{\circ} 00'$, passed three large icebergs and one small berg.

31st.—S. S. "Toronto" passed two icebergs off Belle Isle.

SIGNAL SERVICE AGENCIES.

Signal Service agencies have been established in the Maritime Exchange buildings at New York City and Philadelphia, and in the Custom-House, Boston, where the necessary blanks and other information will be furnished to ship-masters.

In pursuance of the arrangements made with the Meteorological Office of London, England, there were cabled to that office from New York during October, 1885, eight reports concerning storms encountered by vessels in the Atlantic west of the forty-fifth meridian; three messages were sent from Boston.

TEMPERATURE OF THE AIR.

[Expressed in degrees, Fahrenheit.]

The distribution of mean temperature over the United States and Canada for October, 1885, is exhibited on chart ii by the dotted isothermal lines; and in the tables of miscellaneous data are given the monthly mean temperatures, with the departures from the normal, for the various stations of the Signal Service.

In the Rocky Mountain and Pacific coast districts, and in northern New England, the mean temperature for the month has been above the normal, the departures being greatest in the northern slope, northern and middle plateau districts, and in portions of the northern and middle Pacific coast regions, where the mean temperature ranged from 3° to 7° below the normal. To the eastward of a line extending from southwestern New Mexico north-northeastward to Manitoba the mean temperature in all districts, except northern New England, has been below the normal, the departures being most marked in the Gulf States and in portions of the upper Mississippi and Ohio valleys, Lake region, Tennessee, and the south Atlantic

States, where the monthly mean temperatures ranged from 4° to 7° below the normal.

The following are some of the most marked departures from the normal:

	Above normal.	Below normal.	
Fort Shaw, Montana.....	7.1	Chattanooga, Tennessee.....	8.1
Winemucca, Nevada.....	6.7	Atlanta, Georgia.....	7.6
Fort Assiniboine, Montana.....	6.1	Fort Smith, Arkansas.....	7.3
Portland, Oregon.....	5.7	Pensacola, Florida.....	7.2
Helena, Montana.....	5.3	Palestine, Texas.....	6.6
Cape Mendocino, California.....	4.2	Charlotte, North Carolina.....	6.4
Sacramento, California.....	4.0	Columbus, Ohio.....	5.9
Red Bluff, California.....	3.9	Shreveport, Louisiana.....	5.5

In the following table are given the mean temperatures for the several geographical districts, with the normals and departures, as deduced from Signal Service observations:

Average temperatures for October, 1885.

Districts.	Average for Oct. Signal-Service ob- servations.		Comparison of Oct., 1885, with the average for several years.
	For sever- al years.	For 1885.	
New England	o	o	o
Middle Atlantic States.....	51.9	50.7	- 1.2
South Atlantic States.....	57.9	56.1	- 1.8
Florida Peninsula.....	66.2	62.3	- 3.9
Eastern Gulf States.....	74.5	71.2	- 3.3
Western Gulf States.....	67.3	61.1	- 6.2
Rio Grande Valley.....	68.7	63.7	- 5.0
Tennessee	74.9	71.9	- 3.0
Ohio Valley.....	61.3	56.0	- 5.3
Lower Lake region	57.1	52.9	- 4.2
Upper Lake region	52.6	49.5	- 3.1
Extreme Northwest.....	48.0	44.6	- 3.4
Upper Mississippi Valley.....	42.5	41.7	- 0.8
Missouri Valley.....	54.0	49.7	- 4.3
Northern slope	51.1	48.3	- 2.8
Middle slope	43.3	47.1	+ 3.8
Southern slope	51.9	49.6	- 2.3
Southern plateau	63.1	60.8	- 2.3
Middle plateau	60.4	62.8	+ 2.4
Northern plateau	49.0	53.8	+ 4.8
North Pacific coast region.....	47.2	50.4	+ 3.2
Middle Pacific coast region.....	50.8	54.4	+ 3.6
South Pacific coast region.....	58.6	61.7	+ 3.1
	65.8	68.0	+ 2.2

RANGES OF TEMPERATURE.

The monthly, and the greatest and least daily ranges of temperature are given in the tables of miscellaneous meteorological data.

The monthly ranges were greatest in the Rocky Mountain regions, extreme northwest, and upper Missouri valley; they were least along the middle and north Pacific coasts and on the Atlantic and Gulf coasts.

The following are some of the greatest and least monthly ranges:

Greatest.	Least.
Poplar River, Montana.....	o
Fort Yates, Dakota	72.5
Fort Sully, Dakota.....	70.7
Lake View, Oregon.....	68.6
Moorhead, Minnesota.....	68.2
Fort McDowell, Arizona.....	66.3
Willcox, Arizona.....	66.0
Fort Bennett, Dakota	65.8
Tatoosh Island, Washington Territory.....	14.4
Key West, Florida.....	18.3
San Francisco, California.....	23.2
Fort Canby, Washington Territory.....	24.3
Pysht, Washington Territory.....	28.5
New Orleans, Louisiana.....	31.3
Galveston, Texas.....	32.3
Hatteras, North Carolina	33.2

Chart v shows the ranges of extreme temperature over the United States, as determined from observations at Signal Service stations, during a series of years. The lines show the difference between the highest temperature of summer and the lowest temperature of winter as observed during the period of observations: For example, at Boston, Massachusetts, September 7, 1881, maximum temperature, $101^{\circ}.5$, and January 24, 1882, minimum, -13° , giving a range of $114^{\circ}.5$; Chicago, Illinois, July 6, 1874, maximum, 99° , and December 24, 1872, minimum, -23° , range, 122° ; Detroit, Michigan, July 23,

1878, maximum, 100°, and December 22, 1872, minimum, —24°, range, 124°; Fort Benton, Montana, August 6, 1881, maximum, 108°, and December 29, 1880, minimum, —59°, range, 167°; Poplar River, Montana, August 14, 1884, maximum, 99°.8, and January 1, 1885, minimum, —63°.1, range 162°.9; Saint Paul, Minnesota, July 1, 1883, maximum, 100°, and December 25, 1879, minimum, —39°, range 139°; Washington City, September 7, 1881, maximum, 104°.3, and January 1, 1881, minimum, —14°, range 118°.3; Yankton, Dakota, in August, 1873 and in July 1, 1883, maximum, 103°, and December 25, 1879, minimum —34, range 137°.

DEVIATIONS FROM NORMAL TEMPERATURES.

In the table below are given, for certain stations, as reported by voluntary observers, the normal temperatures for October for a series of years, the mean temperature for October, 1885, and the departures from the normal:

Station.	County.	Normal temperature for October.	Number of years.	Mean temperature for Oct., 1885.	Departure.
Arkansas.		°		°	°
Lead Hill.	Boone.	63.4	4	56.0	-7.4
California.	Sacramento	59.2	19	60.4	+1.2
Sacramento.					
Connecticut.					
Middletown *	Middlesex	50.5	27	49.9	-0.6
New Haven *	New Haven	51.4	99	51.6	+0.2
Dakota.					
Webster	Day	51.4	3	45.3	-6.1
Illinois.					
Anne.	Union	60.8	10	54.6	-6.2
Mattoon.	Coles	56.1	5	53.0	-3.1
Peoria.	Peoria	53.7	31	52.3	-1.4
Riley.	McHenry	47.3	25	44.8	-2.5
Sycamore.	De Kalb	51.8	4	44.8	-7.0
Indiana.					
Lafayette.	Tipppecanoe	53.0	6	48.8	-4.2
Logansport.	Cass	55.7	26	51.3	-4.4
Maury.	Rush	53.4		44.6	-8.8
Spiceland.	Henry	51.8	31	48.8	-3.0
Vevay.	Switzerland	56.2	21	53.9	-2.3
Iowa.					
Monticello.	Jones	49.6	31	45.4	-4.2
Kansas.					
Independence.	Montgomery	58.8	14	54.4	-4.4
Lawrence.	Douglas	54.8	18	51.2	-3.6
Wellington.	Sumner	57.8	7	53.9	-3.9
Yates Centre.	Woodson	55.5	5	50.5	-5.0
Maine.					
Belfast *	Waldo	47.0	26	47.7	+0.7
Bridgton *	Cumberland	47.4	11	46.6	-0.8
Gardiner.	Kennebек	47.3	49	47.6	+0.3
Maryland.					
Fallston.	Harford	55.5	15	53.3	-2.2
Massachusetts.					
Amherst *	Hampshire	48.8	48	50.0	+1.2
Cambridge *	Middlesex	50.4	63	50.2	-0.2
Lowell *	Middlesex	50.8	10	49.7	-1.1
New Bedford *	Bristol	52.1	74	51.3	-0.8
Springfield *	Hampden	51.2	18	50.8	-0.4
Somerset.	Bristol	53.4	15	53.5	+0.1
Taunton *	Bristol	54.6	15	52.1	-2.5
Williamstown *	Berkshire	46.5	29	47.5	+1.0
Worcester.	Worcester	51.0	43	47.5	-3.5
Missouri.					
Chamois.	Osage	57.1	12	52.7	-4.4
Nevada.					
Carson City.	Ormsby	47.9	6	52.1	+4.4
New Brunswick.					
Saint John *	Saint John	45.8	25	46.8	+1.0
New Hampshire.					
Concord *	Merrimac	50.9	18	49.3	-1.6
Contoocook.	Merrimac	48.5		48.3	-0.2
Hanover *	Grafton	46.1	26	45.5	-0.6
New Jersey.					
South Orange.	Essex	53.5	16	52.2	-1.3
New York.					
North Volney.	Oswego	49.0	18	46.7	-2.3
Palermo.	Oswego	47.0	32	46.1	-0.9
Ohio.					
Wauseon.	Fulton	51.5	15	46.9	-4.6
Pennsylvania.					
Dyberry.	Wayne	46.9	18	45.6	-1.3
Rhode Island.					
Providence *.	Providence	50.7	51	51.9	+1.2
Vermont.					
Lunenburg *	Essex	44.6	37	45.7	+1.1
Newport.	Orleans	46.3	10	45.7	-0.6
Woodstock.	Windsor	44.1	18	44.7	+0.6
Virginia.					
Bird's Nest.	Northampton	61.9	16	62.1	+0.2
Dale Enterprise.	Rockingham	59.0	5	56.0	-3.0
Variety Mills.	Nelson	58.3	8	52.0	-6.3
West Virginia.					
Helvetia.	Randolph	52.6	9	47.5	-5.1
Wisconsin.					
Wausau.	Marathon	46.6	6	40.6	-6.0

* From the "Bulletin of the New England Meteorological Society."

FROSTS.

Frosts occurred in the various states and territories during the month, as follows:

Alabama.—Mobile, 5th (in the suburbs of the city), 22d, 23d; Montgomery, 14th, 22d, 31st; Greenborough, 22d, 23d.

Arizona.—10th to 15th, 18th, 20th, 21st, 29th, 30th, 31st.

Arkansas.—4th, 14th, 21st, 22d.

California.—San Francisco, 10th; Sacramento, 11th, 12th, 24th, 25th; Susanville, 12th to 28th; Murieta, 30th.

Colorado.—1st to 7th, 11th to 15th, 19th to 31st.

Connecticut.—2d, 7th to 10th, 12th, 16th, 17th, 22d to 27th, 30th, 31st.

Dakota.—1st, 3d to 8th, 11th to 31st.

District of Columbia.—7th, 11th, 22d, 23d, 25th, 26th.

Florida.—Pensacola, 22d, 23d.

Georgia.—Atlanta, 5th, 21st to 24th, 26th, 31st; Augusta, 22d, 23d, 25th, 26th, 30th; Athens, 22d, 23d, 25th, 26th, 31st; Milledgeville, 22d, 23d.

Idaho.—11th to 22d, 25th, 27th, 31st.

Illinois.—1st, 3d to 10th, 13th, 15th, 16th, 20th to 25th, 28th to 31st.

Indiana.—6th to 10th, 15th, 20th to 26th, 30th, 31st.

Indian Territory.—4th, 6th, 13th, 21st, 22d, 29th.

Iowa.—3d to 9th, 13th to 16th, 18th to 24th, 28th to 31st.

Kansas.—1st, 3d to 9th, 12th, 13th, 14th, 18th to 23d, 25th, 28th, 29th, 30th.

Kentucky.—7th, 9th, 15th, 21st to 24th, 31st.

Louisiana.—Liberty Hill, 14th, 21st, 22d; Point Pleasant, 14th, 15th, 21st, 22d; Shreveport, 14th, 20th, 21st, 22d.

Maine.—6th to 13th, 17th, 18th, 24th to 27th, 31st.

Maryland.—22d to 25th.

Massachusetts.—1st, 7th to 10th, 12th, 16th, 17th, 22d to 26th, 30th, 31st.

Michigan.—2d, 4th to 11th, 15th to 31st.

Minnesota.—3d to 6th, 8th, 12th to 18th, 21st to 26th, 28th, 29th.

Mississippi.—Vicksburg, 15th, 21st, 22d.

Missouri.—4th, 6th, 14th, 20th, 21st, 23d, 29th, 30th.

Montana.—3d to 8th, 12th to 25th, 27th, 30th, 31st.

Nebraska.—1st to 8th, 13th to 17th, 19th to 23d, 25th, 26th, 28th, 29th, 31st.

Nevada.—1st, 2d, 3d, 7th, 9th to 28th, 31st.

New Hampshire.—5th, 6th, 7th, 10th to 13th, 15th, 16th, 17th, 23d to 26th.

New Jersey.—5th, 7th, 8th, 10th, 11th, 17th, 22d to 27th, 30th, 31st.

New Mexico.—1st, 4th to 8th, 11th to 14th, 19th to 22d, 24th to 28th.

New York.—4th, 6th to 12th, 16th, 17th, 22d to 26th, 30th, 31st.

North Carolina.—Weldon, 5th, 22d; Asheville, 5th, 16th, 22d to 27th, 31st; Raleigh, 5th, 22d to 25th; Flat Rock, 5th; Reidsville, 5th to 8th, 21st to 24th; Smithville, 22d, 23d; Charlotte, 5th, 22d, 23d, 31st; New River Inlet, 24th.

Ohio.—5th, 7th to 11th, 16th, 17th, 18th, 21st to 27th, 29th, 30th, 31st.

Oregon.—1st, 7th, 10th, 11th, 12th, 14th to 21st, 23d, 25th, 27th.

Pennsylvania.—5th to 11th, 17th to 28th, 30th, 31st.

Rhode Island.—7th, 8th, 23d.

South Carolina.—Stateburg, 5th, 22d to 26th, 31st; Pacolet, 5th, 22d, 23d, 31st; Spartanburg, 5th, 22d, 23d, 31st; Charleston, 23d.

Tennessee.—4th, 5th, 7th, 9th, 10th, 15th, 21st to 25th, 30th, 31st.

Texas.—Cleburne, 13th, 20th, 21st, 29th; Corsicana, 20th; Palestine, 14th, 20th, 22d, 29th; Fort Davis, 13th, 19th, 20th; Abilene, 20th, 21st; El Paso, 13th, 29th.

Utah.—11th, 12th, 13th, 18th to 22d, 24th, 25th, 27th, 28th, 31st.

Vermont.—7th to 12th, 16th, 17th, 22d to 27th, 31st.

Virginia.—5th, 7th to 11th, 16th, 18th, 22d to 28th, 31st.

Washington Territory.—5th, 6th, 8th, 10th to 23d, 31st.

West Virginia.—5th, 7th to 11th, 16th, 21st to 27th, 31st.

Wisconsin.—3d to 9th, 13th to 25th, 27th to 31st.

Wyoming.—5th, 11th, 12th, 13th, 19th to 22d.

In the following table are given the dates of the last frosts of spring and the first frosts of autumn at various Signal Service stations during the years from 1875 to 1884, inclusive. At stations marked with a dagger (†) the last killing frost occurred on the date stated in the year preceding that given at the top of the column, and at stations marked with a double dagger (‡) the first killing frost occurred on the date stated in the succeeding year:

Stations.	Last killing frost of spring.										First killing frost of autumn.									
	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.
<i>New England.</i>																				
Eastport	Apr. 30	Apr. 3	Apr. 10	Apr. 21	May 1	May 4	Apr. 14	Apr. 30	Apr. 23	May 4	Oct. 3	Oct. 9	Oct. 26	Sept. 26	Oct. 26	Oct. 20	Oct. 25	Oct. 5	Oct. 2	Sept. 20
Portland	Apr. 9	Apr. 4	Mar. 26	Apr. 20	Apr. 13	Apr. 15	Apr. 12	Mar. 24	Apr. 22	Apr. 11	Oct. 2	Oct. 17	Oct. 29	Sept. 26	Oct. 28	Oct. 27	Oct. 28	Nov. 1	Oct. 10	
Boston	Apr. 9	Apr. 19	Mar. 26	Apr. 19	Apr. 13	Apr. 22	May 3	Apr. 20	Apr. 22	Apr. 15	Oct. 13	Oct. 12	Oct. 28	Sept. 20	Oct. 1	Oct. 1	Oct. 5	Nov. 3	Oct. 3	Oct. 19
New London	May 1	May 5	Mar. 10	May 24	Apr. 12	Apr. 7	May 3	Apr. 29	Apr. 6	Apr. 13	Oct. 13	Oct. 7	Oct. 6	Oct. 23	Oct. 25	Oct. 25	Oct. 5	Nov. 3	Oct. 5	Oct. 19
<i>M. Atlan'tic States.</i>																				
Albany	May 1	May 3	May 14	Apr. 20	Apr. 13	Apr. 7	Apr. 12	Apr. 8	Apr. 1	Apr. 1	Oct. 13	Oct. 18	Oct. 23	Sept. 26	Oct. 20	Oct. 20	Oct. 5	Oct. 21	Oct. 16	Oct. 19
New York City	Apr. 10	Apr. 8	Mar. 26	Apr. 6	Apr. 12	Apr. 4	Apr. 12	Apr. 2	Mar. 31	Apr. 15	Nov. 2	Oct. 15	Nov. 20	Oct. 4	Oct. 25	Nov. 23	Oct. 27	Nov. 19	Nov. 15	Nov. 7
Philadelphia	Apr. 10	Apr. 20	Mar. 26	Apr. 6	Mar. 13	Apr. 7	Apr. 12	Apr. 12	Mar. 31	Apr. 14	Oct. 12	Oct. 23	Oct. 29	Oct. 25	Oct. 19	Oct. 16	Nov. 6	Nov. 18	Nov. 22	
Atlantic City	Apr. 20	Apr. 11	Mar. 25	Apr. 20	Apr. 12	Apr. 12	Mar. 7	Feb. 27	Mar. 31	Mar. 7	Oct. 23	Oct. 2	Oct. 15	Nov. 7	Oct. 29	Oct. 25	Nov. 16	Nov. 16	Nov. 8	Nov. 6
Barnegat City	Apr. 9	Apr. 8	Apr. 14	Apr. 12	Apr. 12	Mar. 8	Jan. 15	Apr. 30	Mar. 31	Apr. 14	Nov. 1	Oct. 15	Nov. 7	Oct. 9	Oct. 25	Nov. 16	Nov. 27	Nov. 21	Nov. 13	Nov. 21
Baltimore	Apr. 2	Apr. 3	Mar. 26	Apr. 26	Apr. 5	Apr. 12	Apr. 21	May 3	Apr. 25	Mar. 30	Mar. 10	Oct. 3	Oct. 15	Nov. 4	Dec. 6	Oct. 23	Oct. 21	Oct. 19	Nov. 5	Oct. 19
Washington C'y	Apr. 26	Mar. 31	Mar. 26	Mar. 25	Apr. 12	Apr. 7	Apr. 12	Mar. 1	Mar. 31	Mar. 14	Oct. 13	Oct. 12	Oct. 23	Oct. 21	Oct. 19	Nov. 5	Nov. 5	Nov. 15	Oct. 19	
Lynchburg	Apr. 19	Apr. 15	Mar. 26	Mar. 4	Apr. 12	Apr. 7	May 3	Apr. 3	Apr. 25	Mar. 10	Nov. 30	Nov. 6	Oct. 3	Nov. 29	Oct. 4	Oct. 25	Oct. 19	Nov. 10	Nov. 20	Oct. 15
Norfolk	Mar. 23	Mar. 20	Mar. 21	Mar. 21	Apr. 6	Apr. 12	Apr. 7	Feb. 29	Mar. 23	Mar. 5	Apr. 11	Oct. 18	Oct. 15	Nov. 30	Oct. 21	Nov. 17	Nov. 15	Nov. 30	Nov. 21	
<i>S. Atlantic States.</i>																				
Kitty Hawk	Mar. 5	Mar. 18	Jan. 18	Mar. 6	Mar. 25	Apr. 7	Feb. 26	Mar. 25	Mar. 5	Feb. 29	Nov. 30	Nov. 30	Dec. 4	Dec. 18	Nov. 20	Nov. 16	Nov. 5	Nov. 9	Nov. 13	Dec. 4
Wilmington	Mar. 4	Mar. 18	Feb. 19	Apr. 4	Feb. 16	Mar. 8	Jan. 23	Mar. 23	Mar. 4	Mar. 24	Nov. 12	Nov. 1	Nov. 3	Nov. 16	Nov. 24	Nov. 20	Nov. 13	Nov. 10	Dec. 24	
Charlotte																				
Charleston	Mar. 22	Mar. 11	Feb. 12	Mar. 3	Mar. 30	Apr. 15	Jan. 23	Mar. 10	Mar. 10	Mar. 10	Dec. 2	Dec. 2	Nov. 30	Dec. 11	Nov. 21	Nov. 23	Nov. 2	Dec. 11	Dec. 17	Dec. 19
Augusta	Mar. 19	Mar. 11	Feb. 12	Mar. 2	Apr. 12	Apr. 2	Feb. 12	Mar. 23	Mar. 1	Apr. 14	Dec. 10	Nov. 11	Nov. 2	Oct. 26	Nov. 5	Nov. 1	Nov. 20	Nov. 22	Nov. 17	Oct. 25
Savannah	Mar. 22	Mar. 10	Feb. 12	Jan. 10	Jan. 26	Jan. 4	Jan. 13	Feb. 29	Mar. 13	Mar. 10	Dec. 10	Dec. 20	Nov. 30	Nov. 2	Nov. 22	Nov. 22	Nov. 10	Jan. 14	Nov. 22	Dec. 3
Jacksonville	Mar. 22	Jan. 5	Feb. 12	Jan. 10	Dec. 18	Feb. 4	Feb. 6	Mar. 23	Jan. 22	Mar. 17	Dec. 15	Dec. 1	Nov. 30	Dec. 3	Nov. 20	Nov. 16	Nov. 25	Nov. 22	Dec. 16	Dec. 3
<i>Florida Penin.</i>																				
Cedar Keys																				
<i>East Gulf States.</i>																				
Mobile	Mar. 22	Jan. 25	Feb. 6	Jan. 10	Dec. 27	Apr. 2	Feb. 5	Mar. 23	Feb. 29	Mar. 23	Dec. 18	Nov. 9	Nov. 12	Nov. 2	Nov. 22	Dec. 8	Nov. 2	Nov. 15	Dec. 16	Nov. 25
Montgomery	Mar. 22	Mar. 7	Feb. 16	Mar. 18	Feb. 7	Apr. 5	Feb. 5	Mar. 13	Mar. 1	Mar. 11	Dec. 9	Nov. 10	Nov. 4	Nov. 1	Nov. 22	Nov. 7	Nov. 15	Nov. 3	Nov. 7	
Vicksburg	Mar. 22	Mar. 10	Feb. 12	Feb. 12	Feb. 14	Apr. 1	Feb. 12	Feb. 19	Feb. 29	Mar. 9	Dec. 18	Nov. 20	Nov. 7	Nov. 19	Nov. 7	Nov. 20	Dec. 4	Nov. 16	Dec. 6	
New Orleans																				
<i>West Gulf States.</i>																				
Shreveport	Mar. 21	Mar. 10	Feb. 4	Jan. 20	Feb. 4	Feb. 2	Feb. 23	Feb. 19	Feb. 29	Mar. 23	Nov. 11	Dec. 3	Nov. 3	Oct. 23	Nov. 21	Dec. 7	Nov. 20	Nov. 14	Nov. 15	Nov. 7
Galveston																				
Indianola																				
<i>Rio Grande Val.</i>																				
Brownsville	Jan. 9	.....	Jan. 9	Dec. 26	Jan. 11	.....	Feb. 18	Jan. 25	Feb. 14	.....	Dec. 26	.....	Dec. 25	Dec. 22	Dec. 20	Dec. 20	Dec. 19	Jan. 19	Jan. 13	Dec. 25
<i>Ohio Val. & Tenn.</i>																				
Knoxville	Apr. 19	Mar. 29	Mar. 26	Apr. 12	Apr. 13	Apr. 10	Mar. 25	Apr. 25	Apr. 11	Apr. 14	Oct. 17	Oct. 16	Nov. 3	Oct. 2	Oct. 26	Oct. 18	Nov. 4	Nov. 14	Nov. 2	Oct. 24
Memphis	Mar. 14	Mar. 25	Mar. 5	Apr. 17	Apr. 1	Apr. 10	Mar. 22	Mar. 20	Apr. 10	Apr. 4	Oct. 12	Oct. 2	Nov. 3	Oct. 28	Nov. 4	Oct. 20	Nov. 13	Nov. 2	Oct. 24	
Louisville	Mar. 31	Mar. 22	Apr. 19	Apr. 14	Apr. 17	Apr. 11	Apr. 3	Mar. 10	Apr. 10	Apr. 4	Oct. 12	Oct. 9	Nov. 3	Oct. 19	Oct. 25	Oct. 23	Nov. 4	Nov. 14	Nov. 2	Oct. 24
Indianapolis	Apr. 1	May 4	May 13	Apr. 6	Apr. 7	Apr. 14	Apr. 12	Apr. 24	Apr. 24	Apr. 6	Oct. 12	Oct. 10	Nov. 1	Oct. 12	Oct. 24	Oct. 18	Nov. 15	Nov. 13	Dec. 11	Nov. 6
Pittsburg	May 1	Apr. 3	May 16	May 3	May 1	Apr. 15	May 3	May 24	Apr. 7	Apr. 29	Oct. 13	Oct. 9	Nov. 4	Oct. 4	Oct. 25	Oct. 19	Nov. 4	Oct. 21	Nov. 15	Oct. 24
<i>L. Lake region.</i>																				
Buffalo	Apr. 26	May 4	Mar. 30	May 8	Mar. 31	Apr. 15	Apr. 23	Apr. 30	Apr. 30	May 3	Oct. 12	Oct. 12	Nov. 5	Sept. 28	Oct. 26	Oct. 28	Oct. 5	Oct. 4	Oct. 1	Oct. 15
Oswego	Apr. 29	Apr. 8	Mar. 26	Apr. 16	Mar. 15	Apr. 3	Apr. 25	Apr. 29	Apr. 8	May 6	Oct. 14	Oct. 14	Nov. 5	Sept. 1	Oct. 24	Oct. 18	Nov. 13	Jan. 12	Oct. 18	
Cleveland	May 1	Apr. 1	Mar. 6	Mar. 26	Mar. 16	Apr. 10	Apr. 25	Apr. 21	Apr. 29	Sept. 24	Oct. 4	Nov. 7	Nov. 5	Nov. 19	Oct. 14	Nov. 10	Nov. 10	Oct. 21	Oct. 17	Oct. 24
Toledo	May 1	Apr. 1	Mar. 29	May 2	Apr. 2	Apr. 12	Apr. 19	Apr. 29	Apr. 6	Apr. 29	Oct. 14	Oct. 9	Nov. 5	Sept. 30	Oct. 25	Oct. 18	Nov. 13	Jan. 19	Jan. 13	Dec. 25
<i>U. Lake region.</i>																				
Alpena	May 3	May 6	May 15	May 7	May 1	Apr. 29	May 22	May 3	June 29	Sept. 11	Oct. 1	Sept. 5	Sept. 21	Oct. 22	Oct. 10	Sept. 22	Oct. 2	Sept. 14	Sept. 10	Sept. 14
Escanaba	May 4	May 3	May 15	May 8	May 30	May 6	May 18	May 24	May 29	Sept. 10	Oct. 1	Sept. 5	Sept. 21	Oct. 17	Oct. 4	Sept. 5	Sept. 13	Sept. 28	Sept. 9	Sept. 9
Grand Haven	May 1	Apr. 5	May 11	May 2	Mar. 8	Apr. 16	Mar. 2	Apr. 11	Apr. 21	June 10	Oct. 9	Sept. 11	Oct. 12	Sept. 27	Sept. 21	Sept. 30	Oct. 19	Sept. 24	Sept. 10	Oct. 9
Milwaukee	May 1	May 1	May 29	May 2	Mar. 30	Apr. 14	May 3	May 21	Apr. 20	May 11	Sept. 17	Sept. 30	Sept. 30	Sept. 18	Nov. 3	Oct. 24	Oct. 13	Nov. 1	Oct. 1	Oct. 2
Duluth	May 6	May 2	May 12	May 7	Apr. 30	May 3	May 1	May 11	Apr. 29	June 8	Oct. 8	Sept. 8	Sept. 29	Oct. 3	Sept. 21	Sept. 24	Oct. 1	Sept. 10	Sept. 20	Oct. 8
<i>U. Mississippi: V.</i>																				
Saint Paul	May 4	Apr. 30	Apr. 6	Apr. 17	May 21	Apr. 16	May 23	Apr. 19	Apr. 21	May 7	Oct. 11	Sept. 29	Oct. 19	Oct. 18	Sept. 22	Oct. 12	Oct. 5	Oct. 18	Oct. 3	Oct. 22
Davenport	May 1	Apr. 30	Apr. 28	Apr. 11	Apr. 1	Apr. 14	May 22	May 22	May 9	Sept. 18	Oct. 5	Oct. 11	Oct. 27	Oct. 27	Oct. 30	Oct. 4	Nov. 10	Nov. 2	Oct. 3	Oct. 23
Cairo	Mar. 29	Apr. 30	Mar. 20	Apr. 28	Apr. 8	Apr. 20	Apr. 15	Apr. 25	Mar. 20	May 8	Oct. 2	Oct. 25	Nov. 15	Oct. 30	Nov. 1	Nov. 15	Nov. 13	Nov. 2	Oct. 24	
Saint Louis	Mar. 30	Apr. 30	Feb. 27	Mar. 23	Mar. 2	Apr. 14	Mar. 11	Apr. 14	Apr. 31	Oct. 10	Nov. 10	Nov. 3	Oct. 18	Nov. 20	Oct. 11	Oct. 20	Nov. 13	Nov. 12	Oct. 23	
<i>Missouri Valley.</i>				</td																

Table of comparative maximum and minimum temperatures for October.

State or Territory.	Station.	For 1885.		Since establishment of station.			
		Max.	Min.	Max.	Year.	Min.	Year.
Alabama	Mobile	82.2	40.7	93.0	1884	34.0	1873
Do	Montgomery	79.4	40.0	86.1	1884	33.0	1873
Arizona	Prescott	82.0	29.8	86.0	1877	18.0	1886
Do	Fort Apache	86.9	29.8	85.3	1884	19.0	1886
Arkansas	Fort Smith	87.8	32.0	94.7	1883	39.0	1883
Do	Little Rock	83.3	38.8	91.0	1881	39.0	1880
California	San Francisco	76.0	52.8	84.0	1871	45.0	1881
Do	Red Bluff	96.0	46.0	94.0	1877	32.0	1881
Colorado	Denver	80.1	21.9	86.0	1873	1.0	1873
Do	Pike's Peak	36.4	-1.2	47.0	1879	17.0	1878
Connecticut	New Haven	76.0	31.5	96.0	1881	24.0	1879
Do	New London .....	.....	.....	82.7	1879	27.2	1883
Dakota	Fort Buford	78.2	15.4	95.0	1879	9.0	1881
Do	Yankton	83.1	25.5	89.0	1879	9.0	1878
Delaware	Cape Henlopen	79.0	37.5	.....	.....	.....	.....
Do	Del. Breakwater .....	.....	.....	84.0	1881	34.5	1884
District of Columbia	Washington City	75.5	35.3	92.3	1881	20.0	1873
Florida	Jacksonville	84.6	49.4	92.0	1883	40.0	1873
Do	Key West	87.4	69.1	92.0	1870	65.0	1873
Georgia	Atlanta	73.9	37.0	90.8	1884	33.0	1881
Do	Savannah	82.4	47.0	92.0	1884	37.0	1873
Idaho	Boise City .....	.....	.....	85.0	1879, 1880	19.0	1878
Illinois	Cairo	79.0	31.3	84.0	1880	28.0	1881
Do	Chicago	69.0	35.6	83.4	1884	25.0	1873
Indiana	Indianapolis	77.8	31.4	87.0	1884	23.0	1878
Indian Territory	Fort Sill	88.0	33.0	91.0	1878	25.0	1878
Iowa	Dubuque	77.2	27.7	86.0	1879	20.0	1873
Do	Keokuk	77.5	30.0	87.0	1879	20.0	1873
Kansas	Dodge City	83.0	29.2	90.0	1873	10.0	1878
Leavenworth	77.0	30.0	89.0	1871, 1874	14.0	1873	
Kentucky	Louisville	79.0	39.7	90.0	1884	27.0	1878
Louisiana	New Orleans	80.2	48.9	90.8	1884	40.0	1873
Do	Shreveport	83.4	28.4	95.0	1883	31.0	1873
Maine	Eastport	67.0	29.1	80.0	1879	24.0	1881
Do	Portland	63.5	29.8	83.0	1879, 1881	28.0	1876, 1879
Maryland	Baltimore	76.1	38.0	89.0	1879, 1881	30.0	1876, 1879
Massachusetts	Boston	73.4	32.9	90.0	1881	25.0	1879
Michigan	Detroit	72.3	28.2	85.0	1879, 1884	22.0	1873
Do	Marquette	70.0	26.7	87.0	1879	18.0	1878
Minnesota	Duluth	67.9	25.1	78.0	1879	8.0	1878
Do	Saint Paul	79.0	24.9	87.0	1879	15.0	1878
Mississippi	Vicksburg	81.8	38.4	93.7	1884	34.0	1873
Missouri	Saint Louis	79.0	37.0	90.0	1879	15.0	1873
Montana	Do	78.0	21.8	87.0	1875	0.0	1881
Nebraska	Fort Benton	76.9	29.3	75.0	1880	10.0	1881
North Dakota	North Platte	83.0	18.6	89.0	1879	11.0	1878
Nevada	Omaha	75.5	30.2	87.0	1879	15.0	1878
New Hampshire	Winnemucca	82.3	28.8	84.0	1879	10.0	1878
New Jersey	Mount Washington	54.2	9.6	59.0	1871	3.0	1881
Do	Atlantic City	73.9	33.6	83.0	1881, 1884	29.0	1879
New Mexico	Sandy Hook	75.0	36.1	87.0	1881	33.0	1876
New York	Santa Fe	74.5	27.0	85.0	1878	16.0	1880
Do	Buffalo	79.8	29.1	83.0	1879	24.7	1884
North Carolina	New York City	74.1	34.3	87.3	1880	31.0	1876
Do	Charlotte	73.8	37.8	91.9	1884	30.0	1879
Ohio	Wilmington .....	.....	.....	92.5	1884	32.0	1870
Do	Cincinnati	78.0	30.6	87.7	1884	47.0	1873
Ohio	Toledo	74.1	28.2	88.0	1872	25.0	1876
Oregon	Portland	82.2	34.5	79.0	1876	31.0	1877
Pennsylvania	Roseburg	90.9	33.5	76.0	1877, 1880	22.5	1881
Do	Philadelphia	78.2	34.0	87.0	1879, 1881	31.0	1873, 1876
Pittsburgh	Pittsburgh	81.8	45.5	91.1	1884	28.0	1873, 1878
Rhode Island	Block Island	68.9	35.3	75.4	1881	35.0	1870
Do	Newport .....	.....	.....	81.5	1879	30.0	1876
South Carolina	Charleston	81.9	46.0	93.0	1883	39.0	1873
Tennessee	Knoxville	75.8	32.4	94.0	1884	25.0	1873
Do	Nashville	77.8	33.2	91.9	1884	28.0	1873
Texas	Fort Davis	85.0	35.0	90.0	1881	30.0	1880
Do	Galveston	81.7	49.4	87.2	1884	45.0	1871
Utah	Salt Lake City	82.4	28.3	83.0	1876	22.0	1873
Vermont	Burlington .....	.....	.....	78.0	1879	22.0	1873
Virginia	Lynchburg	74.3	33.8	91.3	1884	28.0	1879
Do	Norfolk	81.6	42.8	89.0	1881, 1884	31.0	1876
Washington Ter.	Dayton	85.0	26.5	92.0	1880	19.0	1881
West Virginia	Olympia	72.1	34.1	73.0	1880	23.0	1881
Wisconsin	Morgantown .....	.....	.....	85.0	1879	25.0	1875
Do	La Crosse	73.0	26.0	84.0	1879, 1884	18.0	1873
Wyoming	Milwaukee	69.5	31.1	83.1	1884	22.0	1878
Do	Cheyenne	75.1	14.1	80.0	'73, '74, '79	4.0	1878

ICE.

The formation of ice in the various states and territories occurred as follows:

Alabama.—Mobile, 23d.

Arkansas.—Fort Smith, 20th; Lead Hill, 20th, 21st, 22d.

Colorado.—Montrose, 12th, 21st, 25th, 26th, 27th, 31st; West Las Animas, 12th.

Connecticut.—Southington, 7th; Bethel, 31st.

Dakota.—Fort Sully and Bismarck, 6th; Fort Buford, 12th, 13th.

Idaho.—Boise City, 11th.

Indiana.—Jeffersonville, 21st, 22d,

Iowa.—Des Moines and Oskaloosa, 4th; Independence, 5th,

21st; Dubuque and West Union, 6th; Muscatine, 6th, 8th; Cedar Rapids, 6th, 21st.

Kansas.—Concordia, 3d; Salina, 3d, 9th, 14th; Westmoreland, 6th, 21st, 29th; Dodge City, 13th; Fort Scott, 14th, 20th; Yates Centre, 21st; Topeka, 29th.

Maine.—Kent's Hill, 8th; Eastport, 12th; Bangor, 30th, 31st.

Massachusetts.—Heath and Tanton, 7th, 8th; Blue Hill, 7th, 31st.

Michigan.—Escanaba, 5th, 6th, 18th, 21st to 24th, 29th to 31st; Hudson, 20th; Manistique, 21st; Lansing, 23d, 24th; Detroit and Port Huron, 31st.

Minnesota.—Duluth, 4th, 8th; Saint Paul, 5th, 6th, 14th.

Missouri.—Lamar, 14th, 21st; Centreville, 21st.

Nebraska.—Genoa, 4th, 5th, 8th, 13th, 14th, 19th, 20th, 21st, 29th; Fairbury, 4th, 6th; Yutan, 4th, 6th, 8th, 14th, 20th, 21st, 22d, 29th; Valentine, 5th.

New Hampshire.—Contoocook, 12th.

New Mexico.—Santa Fe, 12th; Fort Stockton, 28th.

New York.—Albany, 8th; Humphrey, 8th, 16th, 24th, 25th, 26th; Rochester, 24th; Syracuse, 30th; Buffalo, 31st.

North Carolina.—Flat Rock, 5th, 14th, 20th to 25th.

Ohio.—North Lewisburg, 9th, 31st; Columbus, 24th; Cincinnati, 31st.

Pennsylvania.—Erie, 8th.

Tennessee.—Nashville, 21st, 22d, 24th; Austin, 22d; Ashwood, 22d, 24th.

Vermont.—Charlotte, 8th; Burlington, 12th.

Virginia.—Lynchburg: ice is reported to have been formed in the southwestern portion of Virginia during the night of the 6-7th; Bruington, 22d.

Washington Territory.—Fort Spokane, 11th.

Wisconsin.—Embaras, 5th, 8th, 14th, 15th, 16th, 18th, 23d, 24th, 29th.

PRECIPITATION.

[Expressed in inches and hundredths.]

The distribution of rainfall over the United States and Canada for October, 1885, as determined from reports from more than eight hundred stations, is exhibited on chart iii.

In the following table are shown, for the several geographical districts, the normal October precipitation for a series of years; the average for October, 1885, and the excess or deficiency as compared with the normal:

Average precipitation for October.

Districts.	Average for October, Signal-Service observations.		Comparison of October, 1885, with the average for several years.
	For several years.	For 1885.	
New England	4.03	5.19	+1.86
Middle Atlantic States	2.99	4.19	+1.20
South Atlantic States	4.22	6.18	+1.96
Florida Peninsula	5.29	5.07	-0.22
Eastern Gulf States	3.30	2.36	-1.00
Western Gulf States	4.06	1.59	-2.47
Rio Grande Valley	3.53	5.04	+1.51
Tennessee	3.24	4.20	+1.02
Ohio Valley	3.19	3.47	+0.28
Lower lake region	3.32	4.05	+0.73
Upper lake region	3.64	2.83	-0.81
Extreme northwest	2.00	0.58	-1.48
Upper Mississippi Valley	3.33	3.41	+0.08
Missouri Valley	2.25	2.09	-0.16
Northern slope	1.12	0.50	-0.56
Southern slope	1.60	1.08	-0.52
Southern plateau	2.38	1.23	-1.10
Middle plateau	0.70	0.33	-0.43
Northern plateau	1.22	0.33	-0.89
North Pacific coast region	2.37	0.98	-1.39
Middle Pacific coast region	4.41	2.06	-2.35
South Pacific coast region	1.35	0.74	-0.62
Do	0.37	0.17	-0.20

The monthly precipitation has been below the average in all districts to the west of the Mississippi River, except in the lower part of the Missouri Valley and near the mouth of the Rio Grande River; it has also been deficient in the east Gulf states, portions of the Lake region and Ohio Valley, and at